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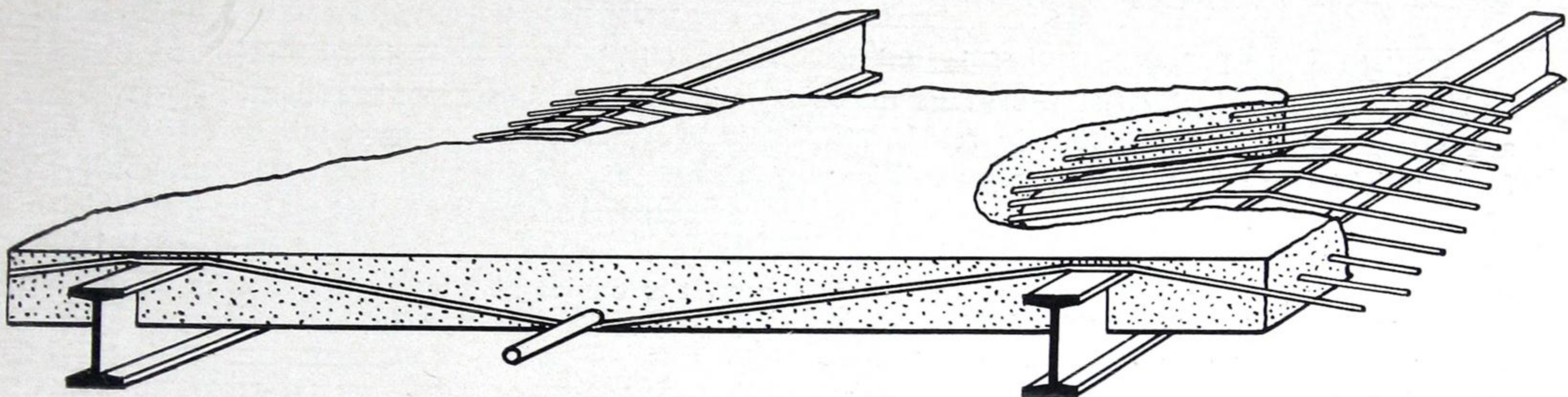
JAN 28 1920

# PYROFIL

MONOLITHIC

## GYPSUM ROOF DECK

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**A**N economical form of poured-in-place construction, that is adaptable to comparatively long spans and provides roofs that are:

- Light in Weight
- Of Proven Strength
- Rapidly Erected
- Quick to Set
- Fire Resistive
- Heat Non-Conducting
- Condensation Minimizing

### UNITED STATES GYPSUM COMPANY

World's Largest Producers of Gypsum Products

205 WEST MONROE STREET, CHICAGO

New York	-	Buffalo	-	Washington	-	Cleveland	-	Detroit	-	Milwaukee
		Minneapolis	-	Kansas City	-	Denver	-	San Francisco		



# Pyrofill Monolithic Gypsum Roof Deck

**LIGHT WEIGHT**—The advantage of adopting a light-weight form of construction is particularly evident in the design of roofs, because the roof represents such a large proportion of the total load to be carried.

A light weight fireproof roof is unique and is secured only by the use of gypsum, a material which, when properly reinforced, forms a light roof adaptable to most conditions of span and pitch.

**MINIMIZES CONDENSATION**—When conditions demand that the difference in outside and inside temperature be compensated to prevent condensation, the required degree of insulation can usually be secured only by greatly increasing the dead load of the roof as well as its cost. Pyrofill **MINIMIZES "SWEATING" ON THE ROOF'S UNDER-SURFACE.**

**HEAT CONSERVING.** The same properties of a gypsum roof which minimizes condensation also prevent the excessive loss of heat. This means a saving in fuel cost each year, as well as in the initial cost of the heating plant installation, as less radiation need be furnished.

**ECONOMICAL AND FIREPROOF ROOF**—Gypsum is a material which provides efficient, positive, lasting insulation and is fire resistive.

**WHERE RECOMMENDED** — Pyrofill Monolithic Roof Deck is recommended where a "poured in place" roof is desired. Formwork is provided the same as required for concrete slabs. Steel cables are laid across the purlins and securely fastened to the members at which they terminate. A transverse steel rod is laid on the cables at the center of each span to secure uniform deflection.

**MATERIAL**—Pyrofill is a specially calcined gypsum, mixed before shipment with a definite proportion of wood shavings. It requires only the addition of water. After being mixed to the desired consistency, it is poured over the reinforcing and leveled off to the specified thickness. The gypsum sets within thirty minutes.

**DESIGN**—The determination of the carrying capacity of a Pyrofill roof is based solely upon the computed strength of steel cables acting in suspension. The principles in its design are the same mathematically as those of a suspension bridge and the stress can be calculated with the same accuracy.

## ENGINEERING SERVICE

Our Engineering Department will gladly render valuable advice on designs and construction of roofs. Consult them without obligation on your part.

## CONSTRUCTION DETAILS

A few typical construction details are given on the last page, mainly to give architects, engineers, and builders assistance in their design.



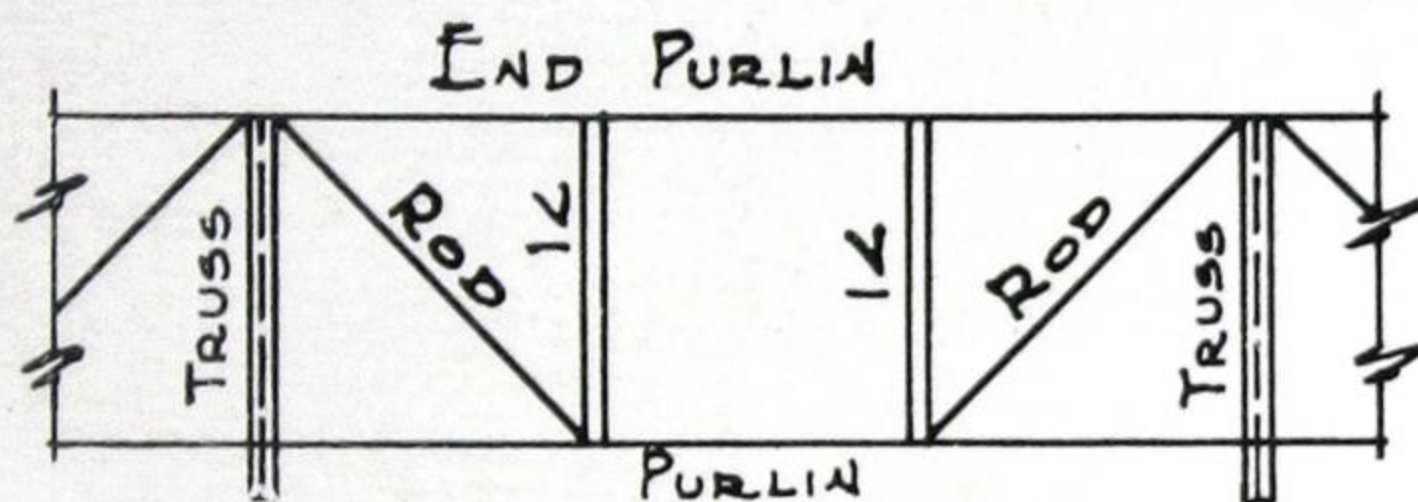
## Estimating Weights of Braces per End Bay

TABLE OF SPANS AND WEIGHTS		
SPANS	THICKNESS OF SLAB	WEIGHT OF SLAB PER SQUARE FOOT
8'-0" OR LESS	3"	12 <sup>#</sup>
8'-0" TO 10'-0"	4"	16 <sup>#</sup>

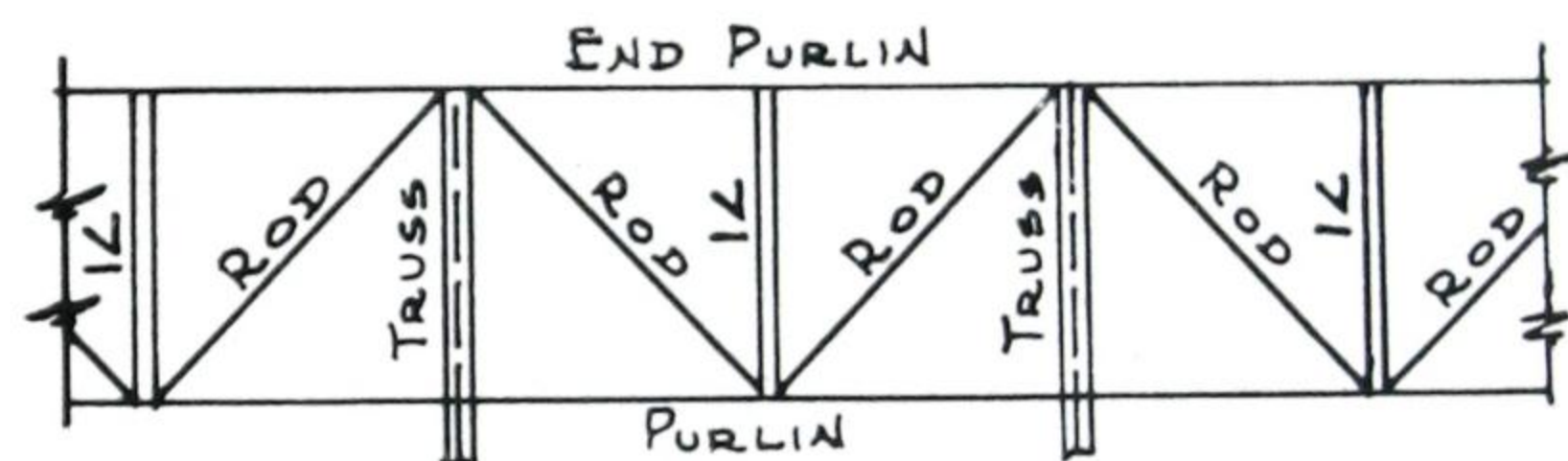
BRACING		
SPAN	ANGLE	ROD
7'-0" OR LESS	2" x 2½" x ¼"	5/8" ϕ
7'-0" TO 8'-0"	2½" x 2½" x ¼"	5/8" ϕ
8'-0" TO 9'-0"	3" x 2½" x ¼"	¾" ϕ
9'-0" TO 10'-0"	3" x 3" x ¼"	¾" ϕ

WEIGHT OF BRACING PER END BAY FOR SPANS LESS THAN 16'-0" USE 1/2 TABLE WT.						
3"	SPAN	4'-0"	5'-0"	6'-0"	7'-0"	
SLAB	WEIGHT	45 <sup>#</sup>	55 <sup>#</sup>	64 <sup>#</sup>	72 <sup>#</sup>	
4"	SPAN	8'-0"	8'-6"	9'-0"	10'-0"	
SLAB	WEIGHT	101 <sup>#</sup>	111 <sup>#</sup>	124 <sup>#</sup>	137 <sup>#</sup>	

WEIGHTS OF BRACING PER END BAY FOR PURLIN SPANS OF 16'-0" OR LESS USE 1/2 WEIGHT SHOWN IN TABLE											
SLAB SPAN	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"
WT. OF BRACING PER END BAY	55 <sup>#</sup>	60 <sup>#</sup>	64 <sup>#</sup>	68 <sup>#</sup>	72 <sup>#</sup>	84 <sup>#</sup>	89 <sup>#</sup>	111 <sup>#</sup>	117 <sup>#</sup>	123 <sup>#</sup>	129 <sup>#</sup>



BRACING PLAN—PURLIN SPANS MORE THAN 16'-0"  
NOTE.—Purlins rest on top chord of truss. Bracing angles frame flush tops with purlins.



BRACING PLAN—PURLIN SPANS LESS THAN 16'-0"  
Distance of bracing rod connecting hole from top of purlin 6", 7", 8" beams 1½": 9", 10", 12" beams 1¾": 15", 18" beams 2".

## SPECIFICATIONS

Unless otherwise shown, all roof slabs shall be constructed of poured Gypsum, using the system of the United States Gypsum Company known as Pyrofill Gypsum Roof. This Contractor shall provide necessary forms, reinforcing cables, Pyrofill and all labor required.

The forms shall be made in a workmanlike manner of dressed and matched lumber, and shall be carefully leveled up so as to insure a uniform depth of slab.

Reinforcing shall consist of steel cables made by twisting two No. 12 wires. These cables shall be calculated to take the entire roof load, and shall be fastened at their ends in such manner as to develop the full strength required.

In no case shall the stress in the cables exceed 20,000 pounds per square inch, or more than 20 per cent

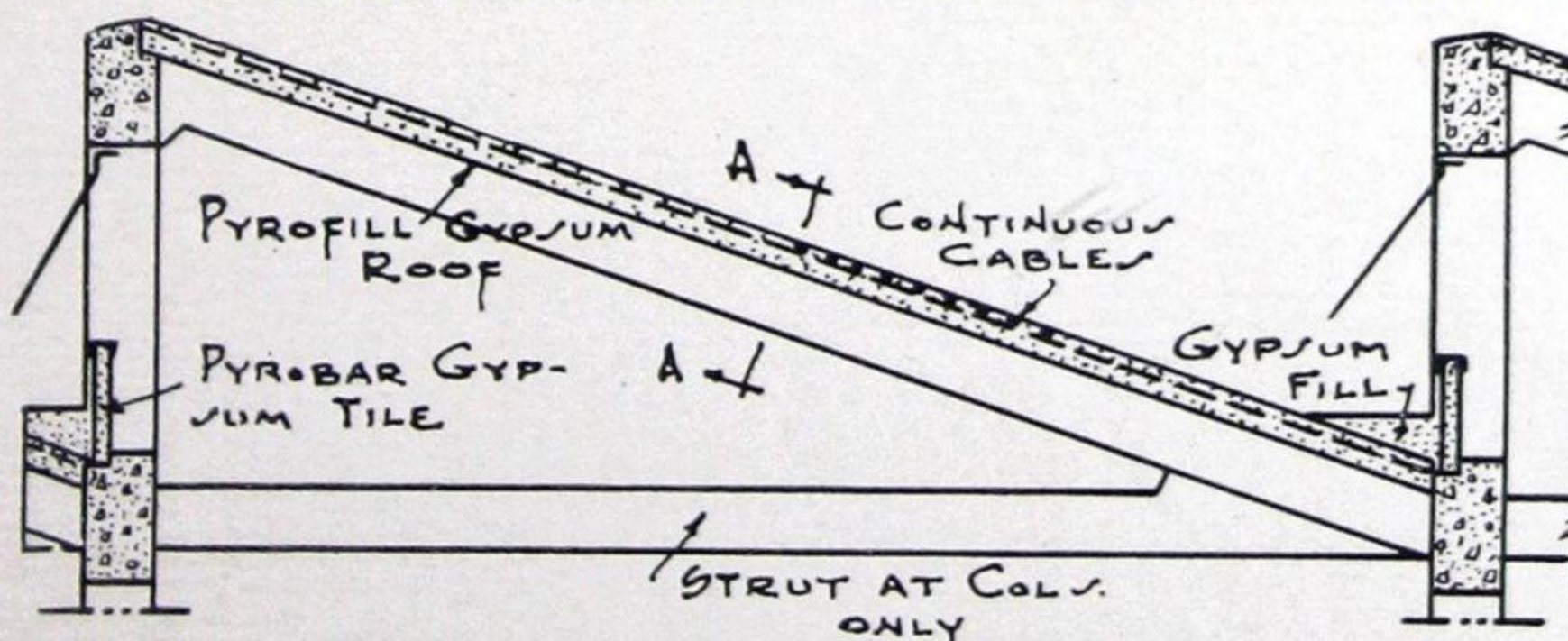
of the ultimate strength. The spacing of these cables and the depth of slabs have to conform to the standards of the United States Gypsum Company.

The Gypsum composition for making the slabs shall consist of a uniform mixture of Pyrofill and water. The top surface of this slab shall be screeded smooth so as to leave an even surface to receive the roof covering.

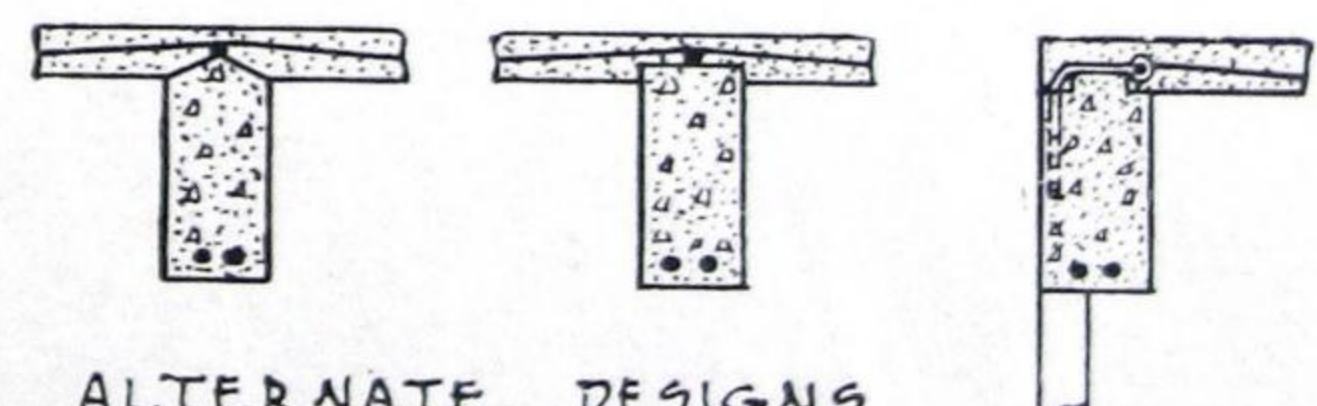
All cantilever construction, such as eaves, etc., shall be cast solid of STRUCTOLITE, properly reinforced and anchored to the adjoining slab. All curb walls, ends of monitors, etc., shall be constructed of 3-inch Pyrobar Gypsum Tile, neatly laid up in Gypsum mortar.

The steel contractor shall provide proper steel framing around all openings such as vent stacks, ventilators, etc.

## CONSTRUCTION DETAILS—CONCRETE FRAME BUILDINGS



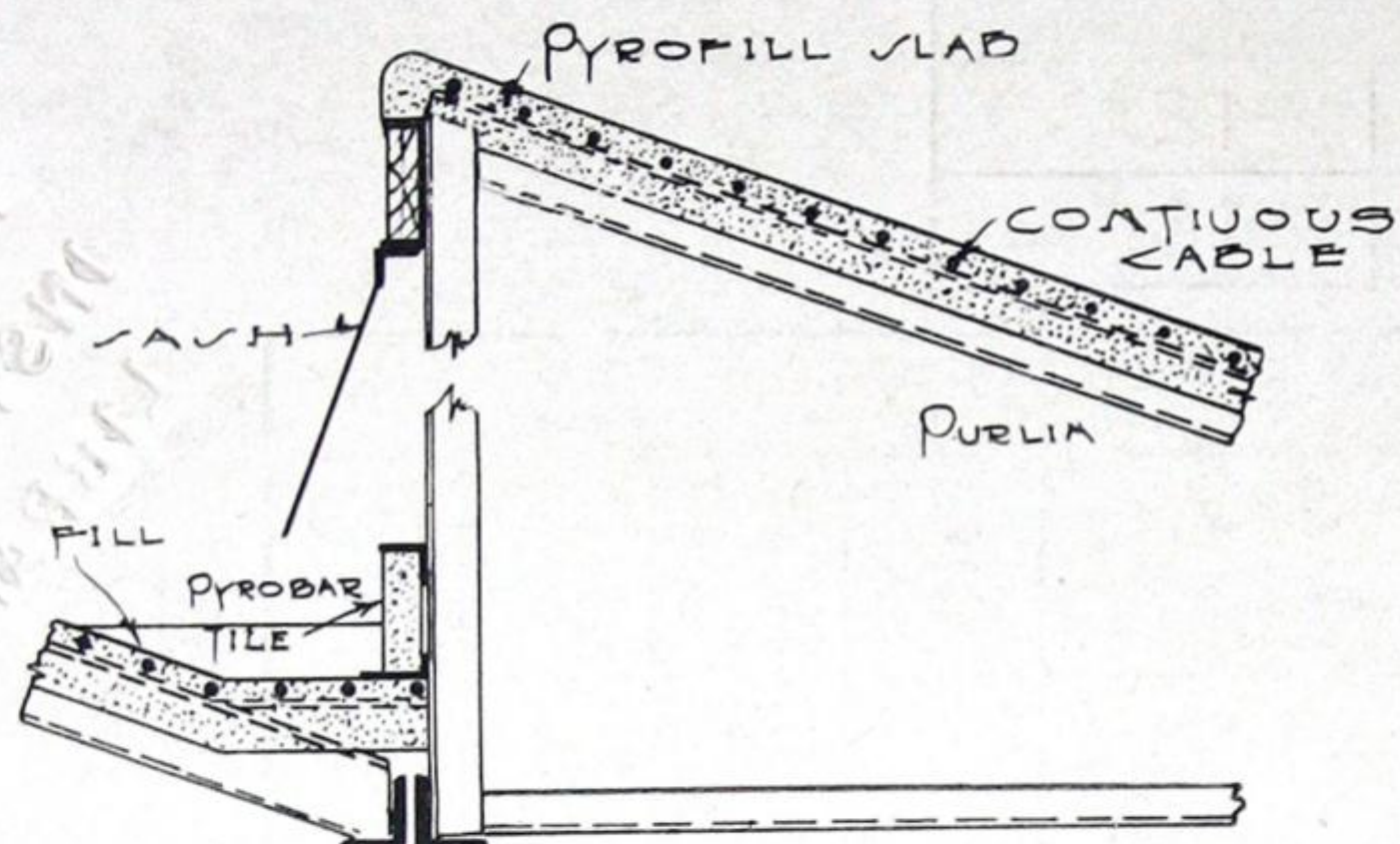
SECTION OF SAWTOOTH



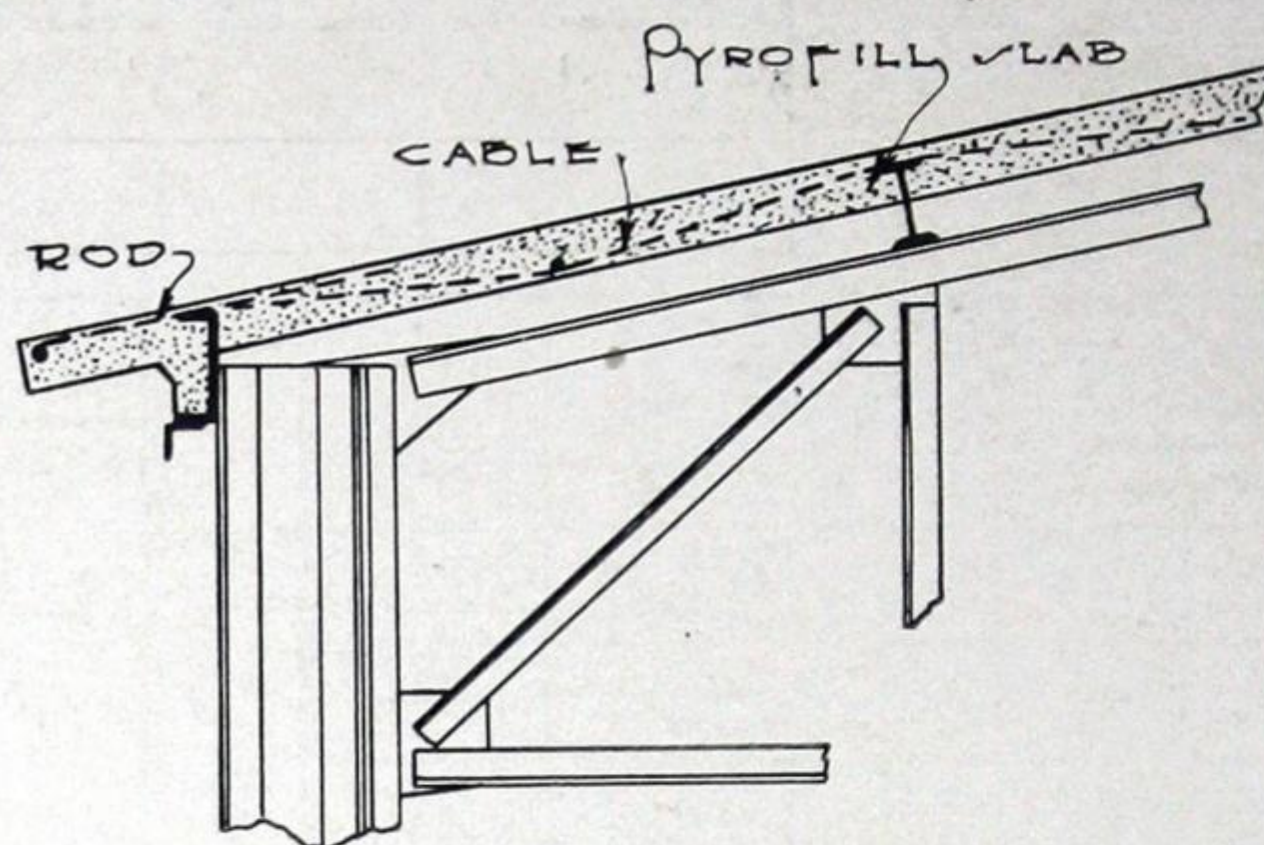
ALTERNATE DESIGNS  
FOR SECTION A-A. SECTION  
THRU EXTERIOR  
BEAM



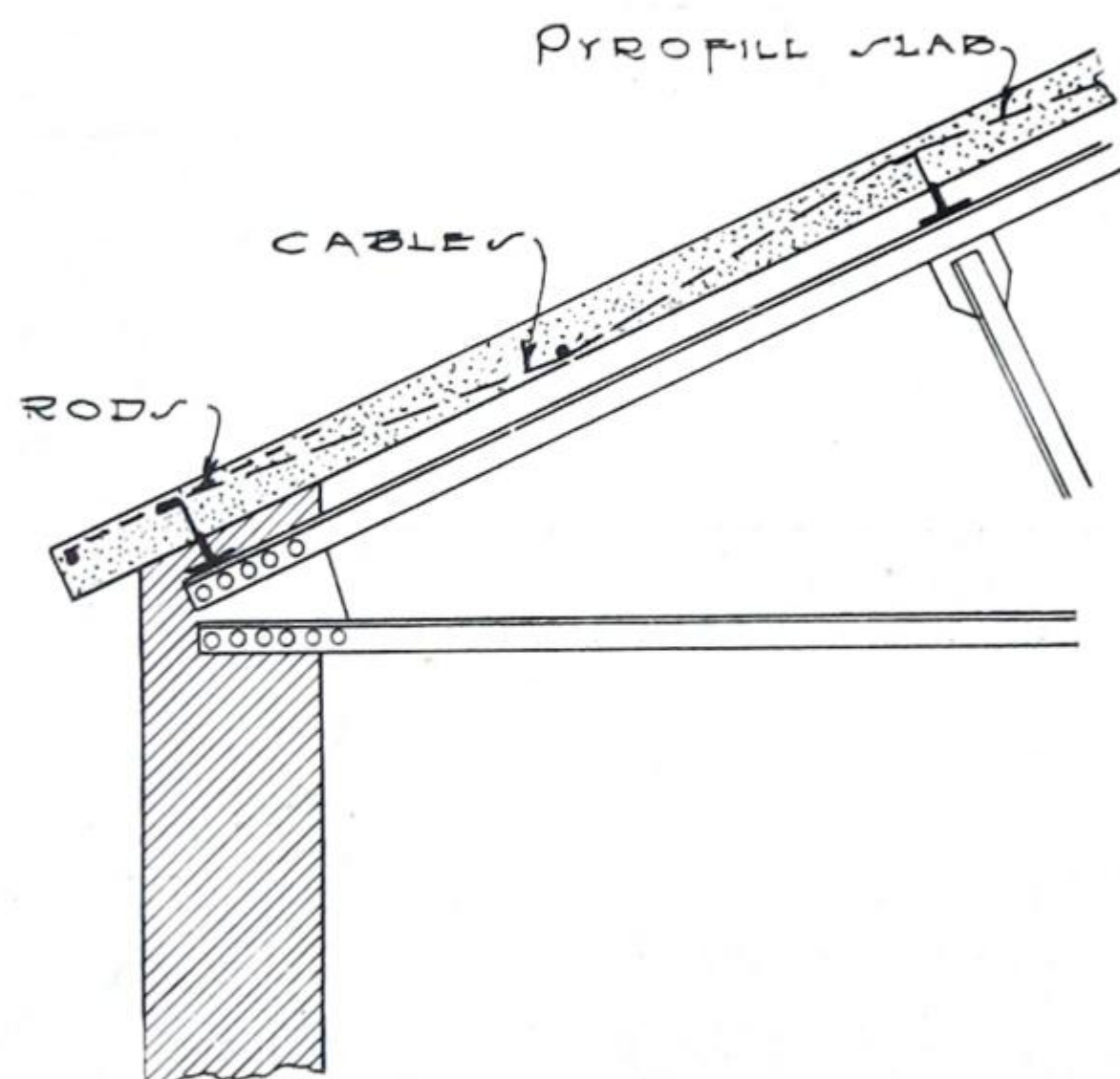
# CONSTRUCTION DETAILS STEEL FRAME BUILDINGS



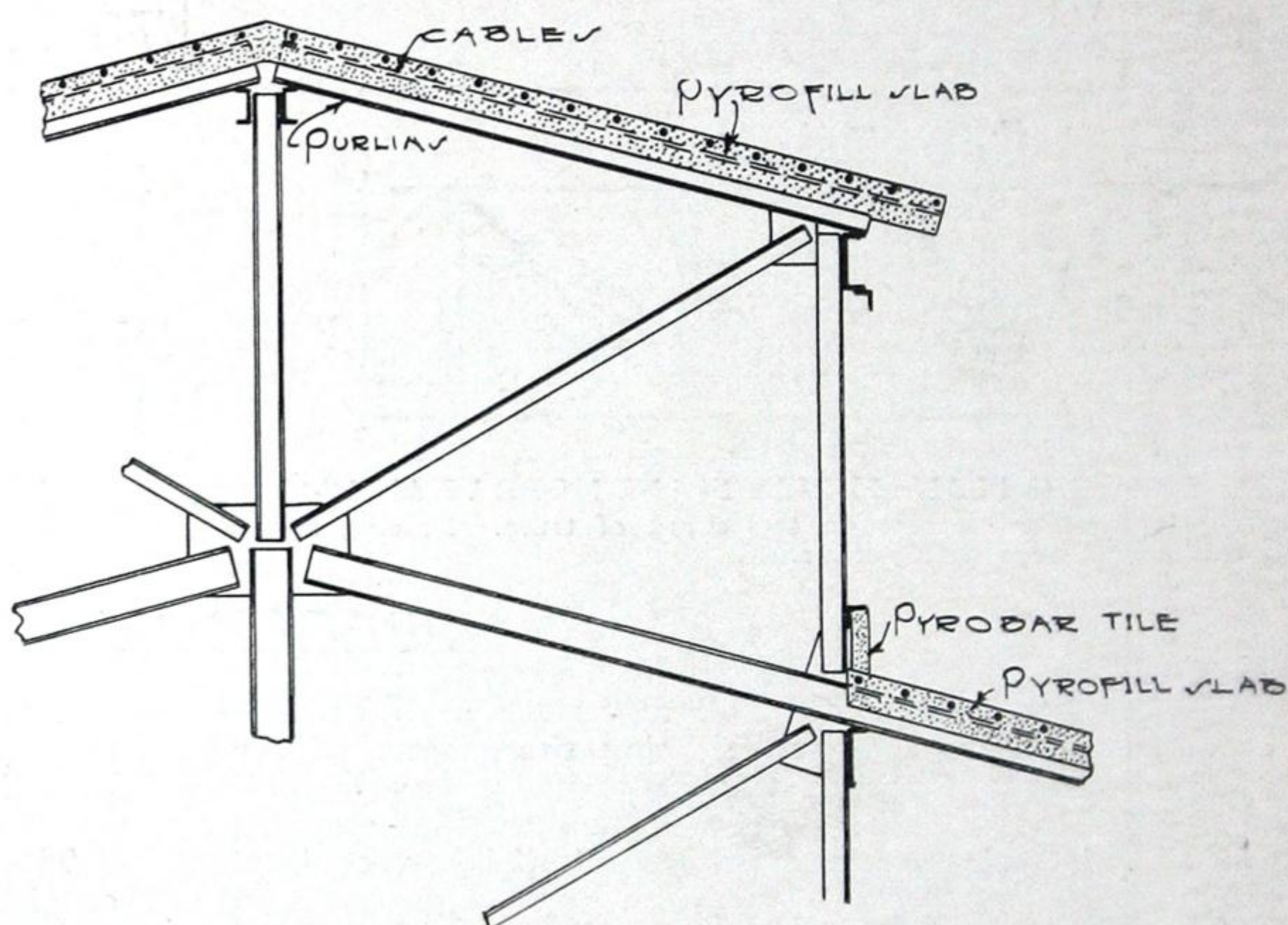
SAWTOOTH ROOF DETAIL



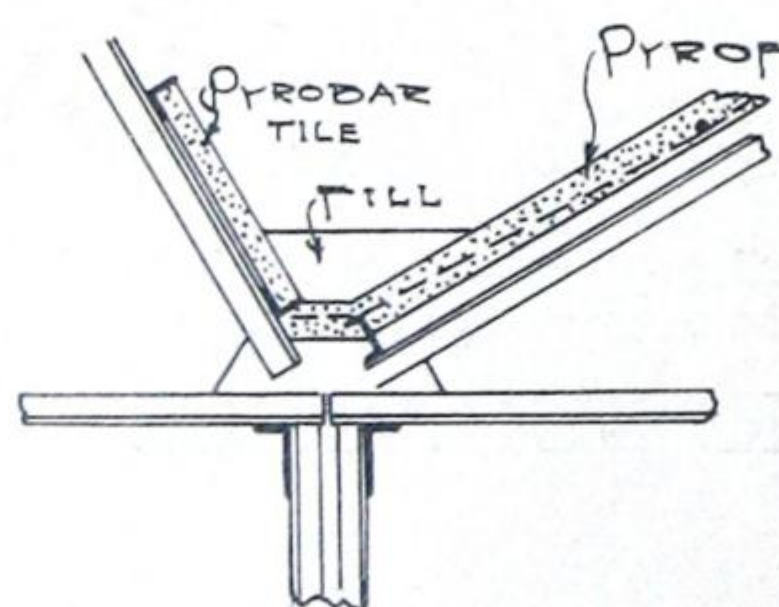
DETAIL OF ROOF AT WALLS



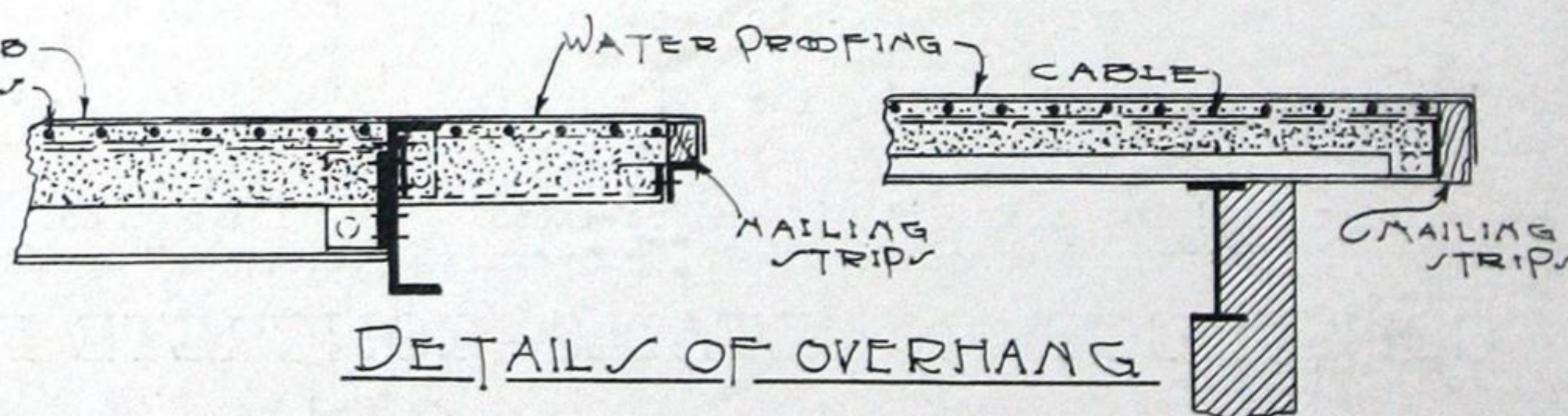
DETAIL OF ROOF AT EAVE



DETAIL OF ROOF ON MONITOR



GUTTER DETAILS



DETAILS OF OVERHANG

## UNITED STATES GYPSUM CO.

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205 West Monroe Street, Chicago

New York Buffalo Washington Cleveland Detroit Milwaukee Minneapolis Kansas City Denver San Francisco